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Synthesis of the aluminum-substituted hexaferrite SrFe 9.5Al 2.5O 19

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Abstract

The phase-formation processes involved in the synthesis of the hexagonal ferrite SrFe 9.5Al 2.5O 19 by solid-state reaction at 900°C for 5 min to 8 h were studied by x-ray diffraction and Mössbauer spectroscopy. The formation of the hexagonal ferrite at this temperature was found to take 3 h. The resultant material also contained SrAl 2O 4 and SrFeO 3-x, which suggests that, for the synthesis to reach completion, the heat-treatment temperature should be higher. The aluminum cations in the hexaferrite phase were shown to occupy, for the most part, positions 12k and 4f 1. © 1999 MAHK "Hayka/Interperiodica".